

Work Order ID 57523

April 8, 2010 7:42:31 AM



Page 1

Item ID: D4010-1

Accept



Setup Start



Revision ID:

Stop



Item Name: Bearpaw

Start Date: 4/08/10 Start Qty: 6.00



Cust Item ID:

Required Date: 4/14/10 Req'd Qty: 6.00



Customer:

Reference:

Run Start



Approvals: Process Plan: W Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4010	C								

100

0.00



HAND FINISHING THERMOFORMING

Thermoform

Memo

0.00

Thermoforming Machine

Cut Blanks to fit frame size

BB
10/04/08
X6

105

0.00



HandThermo

Memo

0.00

Hand Finishing Thermoforming

Dry Sheet as per QSI022 ALEXTRA

Temp: 250°

Time IN: 8:00 PM April 10 / 2010

Time OUT: 7:00 AM April 12 / 2010

BB
10/04/12
X6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57523

April 8, 2010 7:42:31 AM



Page 2

Item ID: D4010-1

Accept



Setup Start



Revision ID:

Stop



Item Name: Bearpaw

Start Date: 4/08/10

Start Qty: 6.00



Cust Item ID:

Required Date: 4/14/10

Req'd Qty: 6.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110

0.00



THERMOFORMING MACHINE

Thermoform

Memo

0.00

Thermoforming Machine

Thermoform as per Dwg. D4010-1 and Folio FTA067 using tool DT 9540

Dwg. Rev. CFolio Rev. BB3
10/04/12
(X6)

120

0.00



QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

Visually inspect for proper formation of each part

B3
10/04/12
(X6)

130

0.00



QC8- Inspect parts - second check

QC

Memo

0.00

Quality Control

B3
10/04/12
(X6)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57523

April 8, 2010 7:42:32 AM



Page 3

Item ID: D4010-1

Accept



Setup Start



Revision ID:

Stop



Item Name: Bearpaw

Start Date: 4/08/10 Start Qty: 6.00



Cust Item ID:

Required Date: 4/14/10 Req'd Qty: 6.00

Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

0.00



HAND FINISHING THERMOFORMING

Thermoform

Memo

0.00

Thermoforming Machine

1-Trim & Drill to Finished Dimensions as per dwg D4010-1

2- Use wearplate jig DT9542 to transfer drill holes in bearpaw as per dwg and use 0.375" unibite to open holes to finish size.

3- ~~Drill~~ Counter holes with O-Flute. *OK 10/04/14.*
Countersink tool.

0.00

145



HandThermo

Memo

0.00

Hand Finishing Thermoforming

Anneal trimmed & drilled product at 250 deg. F. for 75 minutes & allow to cool in oven.

Time In: 3:30 PM 10/04/14 BB

Oven Off: 6:30 AM 10/04/15 BB

OK 10/04/14
BB 10/04/14 (X6)

PTO

BB
10/04/15 (X6)

W/O: 57523		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
10/04/14	140	change item 3 to Read CHAMFER HOLES USING O-FLUTE COUNTERSINK B.T. (PERMANENT CHANGE ON ROUTING CARD.)	DL	10/04/14	6		S 10/04/15	
10/04/14	140.	USE Woodburn to transfer drill holes as per drawing D4010-041 USE O-Flute countersink bit to chamfer outside of holes. (NO CHANGE TO ROUTING) for this W.O. only.	DL	10/04/14	6		S 10/04/15	

Part No: D4010-1 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57523

April 8, 2010 7:42:33 AM



Page 4

Item ID: D4010-1

Accept



Setup Start



Revision ID:

Stop



Item Name: Bearpaw

Start Date: 4/08/10

Start Qty: 6.00



Cust Item ID:

Required Date: 4/14/10

Req'd Qty: 6.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150

QC2- Inspect parts off machine FAI/FAIB

0.00



QC

Memo

0.00

Quality Control

Check dimensions to ensure conformity to drawing tolerances.

B
10/14/13 X6

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Found no scratches or deep gouges to cause marking

Solalis

(16)

170

Identify as per dwg & Stock Location:

0.00



Packaging

Memo

0.00

Packaging

10/14/15 (6)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57523

April 8, 2010 7:42:33 AM



Page 5

Item ID: D4010-1

Accept



Setup Start



Revision ID:

Stop



Item Name: Bearpaw

Start Date: 4/08/10 Start Qty: 6.00



Cust Item ID:

Required Date: 4/14/10 Req'd Qty: 6.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180



QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

10/04/15 *[Signature]*ME
10-4-15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 8, 2010 7:42:30 AM

Page 1

Work Order ID: 57523



Parent Item: D4010-1



Parent Item Name: Bearpaw

Start Date: 4/08/10

Required Date: 4/14/10

Comments: IPP RevA: New issue DD verified by:EC
IPP Rev B. Improved process Add Step 105 (Drying) & 145 (Annealling) to
 routings 10/03/31 DL

Start Qty: 6.00

Required Qty: 6.00

Component Item ID/	Replacement	Mfg/	Bin	Primary	Last	Route	Unit of	Qty on	Remaining	Qty	Date	Status
M-ALXTRAB-S.300		Purchased	No			100	sf	623.9800	44.8674			

Alextra ET 0.300 sheet

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
therm	623.98	
113108	623.98	

x6 Wh 10/04/08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 57523
Description: Beam Pans 407		Part Number: 04010-1
Inspection Dwg: 04010 Rev: C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Inside Radii less than <u>1/4"</u>				
Shape Definition	✓			
Texture Retention	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

Measured by: <u>W.H.</u>	Date: <u>10/04/08</u>
--------------------------	-----------------------

TRIMMING SECTION

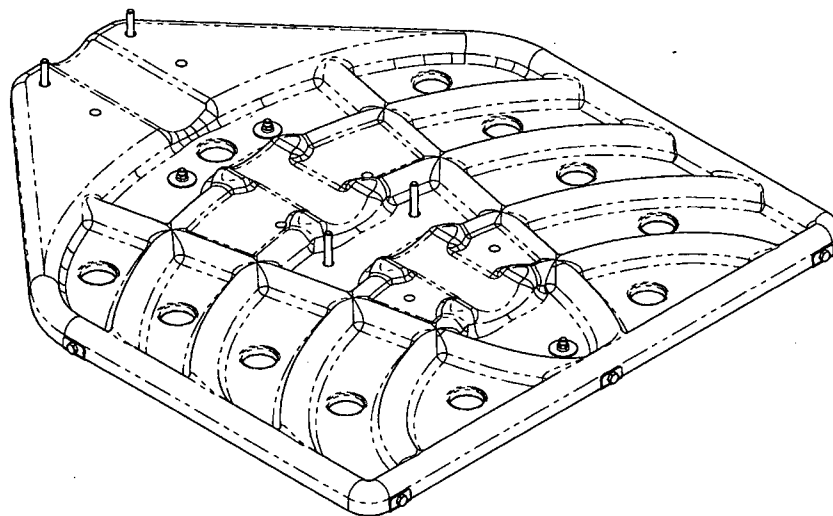
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
12.00"	± 0.05	11.875	✓			
5.50"	± 0.030	5.5	✓			
9.50"	± 0.030	9.5	✓			
11.81"	± 0.030	11.825	✓			
16.69"	± 0.030	16.71	✓			
20.94"	± 0.030	20.9	✓			
23.25"	± 0.030	23.25	✓			
24.66"	± 0.05	24.5	✓			
234"	± 0.025	235	✓			
1.00"	± 0.100	1.10	✓			
1.25"	± 0.13	1.36	✓			
0.375	± 0.006	3.74	✓			

Measured by: <u>W.H.</u>	Date: <u>10/04/14</u>
--------------------------	-----------------------

Audited by: <u>JB</u>	Date: <u>10/04/14</u>
-----------------------	-----------------------

Prototype Approval:	Date:
---------------------	-------

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/DL	



D4010-041 BEARPAW ASSEMBLY (407)

*WLO
57823*

RELEASED
2009-11-26
MB

REV.	DESCRIPTION	BY	DATE
C	OPTIMIZED DESIGN BASED ON FUNCTIONALITY AND TO EASE MANUFACTURING	MB	09.11.10
B	REDESIGNED, ADDED PROVISIONS FOR COMPATIBILITY WITH OEM SKIDTUBES/SADDLES, REDEFINED SOME TOLERANCE	MB	09.11.02
A	NEW ISSUE	MB	09.10.22
DESIGN	<i>LA</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>LA</i>		
CHECKED	<i>ALS</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>MB</i>	D4010	SHEET 1 OF 3
APPROVED	<i>MB</i>	TITLE	SCALE
DE APPR.	<i>MB</i>	BEARPAW (407)	NTS
DATE	09.11.10	<small>COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

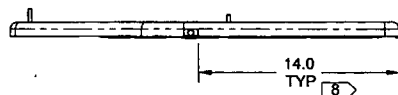
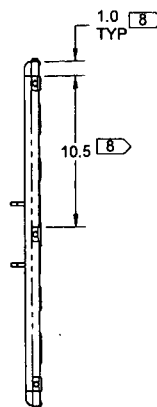
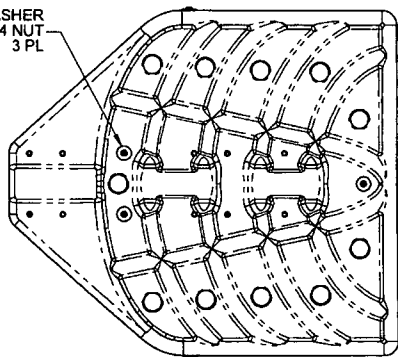
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

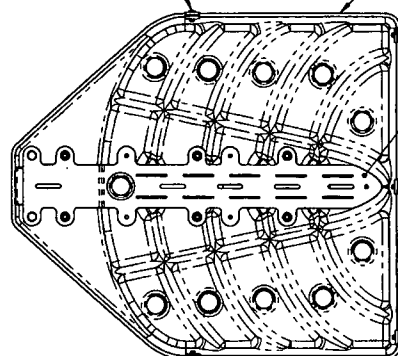
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

D3456-1 WASHER
MS21043-4 NUT
3 PL



AN3C5A BOLT
D4015-041 WEARBAR
MS21043-3 NUT



D4010-1
BEARPAW

AN3C5A BOLT
D4015-041 WEARBAR
MS21043-3 NUT

D4013-041 WEARPLATE
ASSEMBLY

AN3C5A BOLT
D4015-041 WEARBAR
MS21043-3 NUT

AN3C5A BOLT
D4015-041 WEARBAR
MS21043-3 NUT

AN3C5A BOLT
D4015-041 WEARBAR
MS21043-3 NUT

D4010-041 BEARPAW ASSEMBLY (407)

ITEM	QTY -041	P/N	DESCRIPTION
1	X	D4010-041	BEARPAW ASSEMBLY (407)
3	3	D3456-1	WASHER
4	1	D4010-1	BEARPAW
5	1	D4013-041	WEARPLATE ASSEMBLY
6	5	D4015-041	WEARBAR
21	5	AN3C5A	BOLT
22	5	MS21043-3	NUT
23	3	MS21043-4	NUT

Colo
57523

RELEASED
2009-11-24

D4010-041 NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 9.41 lbs
- 8) LOCATE D4015-041 (ITEM 5) AS SHOWN AND TRANSFER DRILL $\varnothing 0.191$ " HOLE FROM D4015-041 TO D4010-1 BEARPAW AND FASTEN USING PRESCRIBED HARDWARE.
- 9) TORQUE: AN3 NUTS = 15-20 in-lb
AN4 NUTS = 50-70 in-lb

DESIGN	1/4	DART AEROSPACE LTD	
DRAWN	1/4	HAWKESBURY, ONTARIO, CANADA	
CHECKED	1/5	DRAWING NO.	REV. C
MFG. APPR.	1/5	D4010	SHEET 2 OF 3
APPROVED	1/5	TITLE	SCALE
DE APPR.	1/5	BEARPAW (407)	NTS
DATE	09.11.10	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

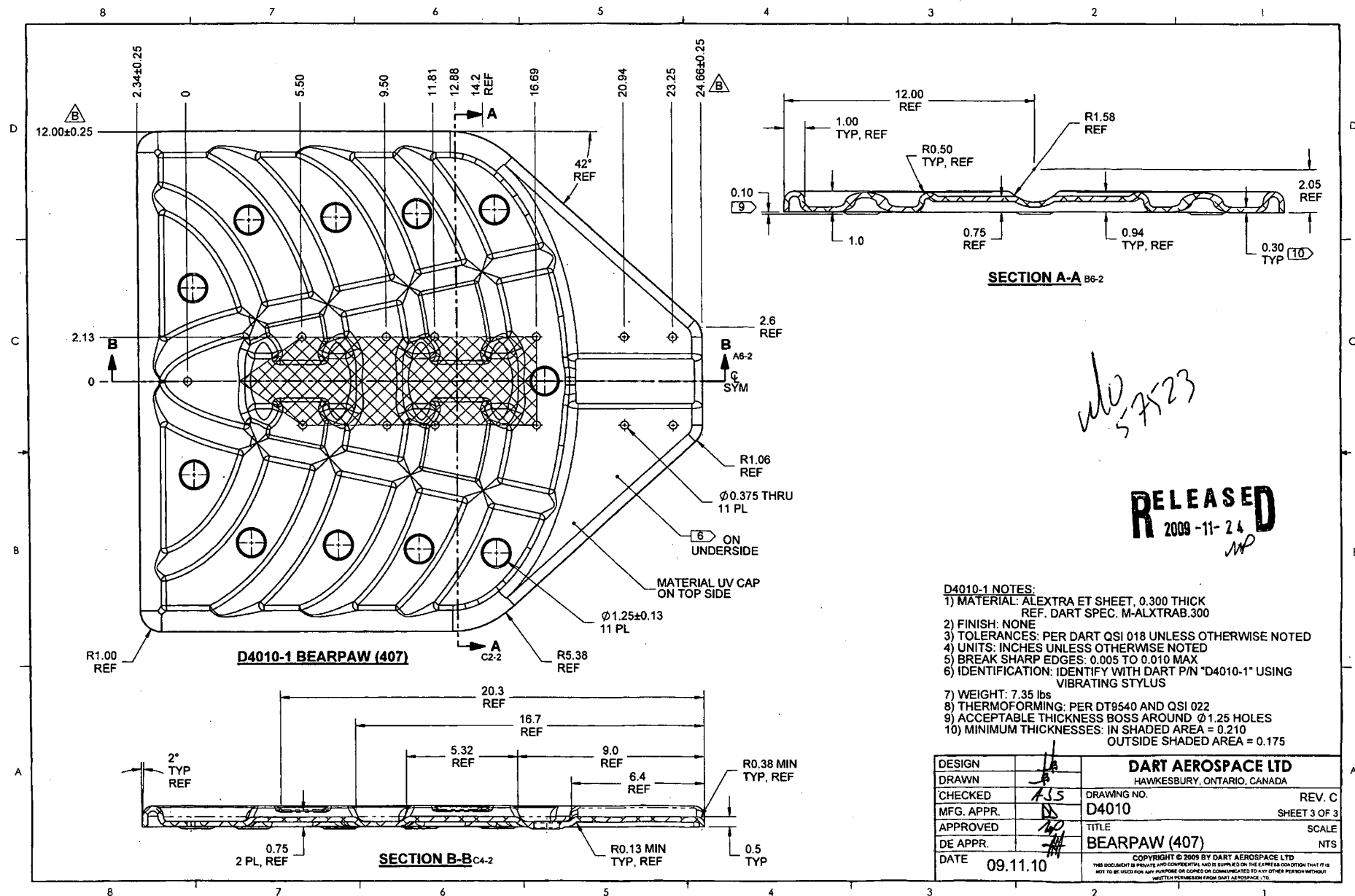
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries